MIDES SISTEMI DOO
Broj 9/2022-1
11.02. 2022. god.
NOVI SAD

ZAPISNIK

Ovim zapisnikom se konstatuje da je dana 11.02.2022. godine u Novom Sadu, izvršen tehnički prijem UPS Sistema modularnog subrek UPS sistema snage 40kW u redundantnoj konfiguraciji 20kW+20kW Centiel CumulusPower CP 2x20kW CAB-UR050 i modularnog ispravljačkog sistema maksimalne raspoložive snage 250A sličnog tipu Unipower Guardian Access 3U | MS27, subrek sa ispravljačkim modulima u konfiguraciji 2x3kW + 3kW kao redundanca u konfiguraciji N+1;

Smešteni u 19" samostojeći orman 45U/800/1000 (VxŠxD), nosivosti minimum 1500kg i sa heavy duty policama nosivosti 150kg svaka. I AGM baterije bez održavanja kapaciteta 40 komada x56,4 Ah @C10, baterijski set dizajniranog životnog veka 10-12 godina; AC distribucija sa prednje strane ormana, priključne redne stezaljke kao izlaz/ulaz su izmešteni nazad. Predviđa se i metalni nosač ormana za montažu.

Ispravljački sistem ima mogućnost zamene modula i procesora u radu, "na živo". Signalizacija ispada DC osigurača.

Ulazni napon je 3ph; izlazni napon je -48Vdc, vidno uzemljen (+) polariteta jednosmernog napona. SNMP i relejno beznaponska signalizacija statusa ispravljačkog sistema.

Konačna težine sistema 1.226kg; dimenzije osnove 800x1000, visina 45HU; procenjena disipacija ormana sa UPS modularnim i ispravljačkim modularnim sistemom je do 1,5kW. Rek orman je perforiran sa prednje i zadnje strane a smer strujanja vazduha je od napred ka nazad.

Prisutni:

Company name:
China Railway Construction Electrification Bureau Group Co Ltd
SERBIA OGRANAK BEOGRAD

1. Zhu Liang
2. Zhang Peng Fei
3. Miroslav Stefanković

Ime kompanije: Infrastruktura železnice Srbije
1. Snežana Lukić

Ime kompanije: Mides sistemi doo
1. Darko Šipragić

MIDES
MIDES SISTEMI d.o.o. NOVI SAD

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MIDES
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GUARDIAN ACCESS 3U

MODEL GDN.S.48.MS27
3U Integrated DC Power System
-48VDC | 300A | 14.5kW

INDUSTRIES & APPLICATIONS

Telecom · Cable · Utilities · Government · Industrial

CE RoHS
LVD2006/95/EC
EMC2004/108/EC
ROHS2011/65/EU

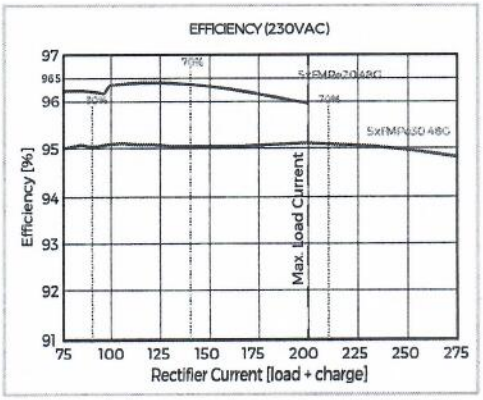
KEY FEATURES

- >96% Efficiency Rectifiers
- 300A / 14.5kW Total Capacity
- Remote Monitoring & Control
- Field Replaceable Controller
- Ethernet Comm. with SNMPv3
- 3 LED Alarm/Status Indicators
- 4 or 10 Form-C Relay Alarms
- Up to 9 Load Breakers
- Up to 3 Battery Breakers
- LCD Display/Touchpad
- Easy Installation

SAFETY COMPLIANCE

UL60950-1 2nd Ed.
CSA22.2 No. 60950-1 2nd Ed.
EN60950-1 2nd Ed.

THREE YEAR WARRANTY



DESCRIPTION

Guardian Access 3U is a 3RU high 19" rack-mounted, integrated DC power system providing an output of -48VDC. These systems can accommodate up to 5 Guardian family high efficiency hot-swap rectifiers. A total load current of 200A is available with battery charge current up to 100A in addition. The rectifiers are internally fan cooled with speed control which is a function of load and temperature, keeping acoustic noise to a minimum.

The DC output circuits can provide up to 9 loads which utilize circuit breakers rated from 4A to 150A plus up to three 80A, 100A or 125A breakers that provide battery protection. A programmable 200A low voltage battery disconnect (LVBD) is incuded as standard; while an optional partial load disconnect (PLD), rated at 125A and also programmable, can provide non-critical load shedding when operating on batteries.

The ACX Advanced remote access controller monitors system parameters, controls rectifier output, and provides alarms for system failures. The Controller Module is also pluggable for easy field replacement in case of failure. There are 2 LED alarm indicators which indicate failures, (RED) Alarm and (YELLOW) Message. A third green LED indicates the controller is working properly. As standard four form-C relay outputs provide the alarms for remote use. An additional 6 can be included as an option. Two digital inputs and outputs are also provided as well as a microSD card slot that accepts an up to 4GB card which is sufficient for more than 20 years data logging.

The system can be programmed by means of a remote PC web page display. Communication is by Ethernet LAN with SNMPv3 including alarm trapping. It also has provision for temperature compensated charging of an external battery using a supplied TC probe. An LCD Display/Touchpad is included for local metering, status, and setup.

The Guardian Access 3U is compatible with UNIPOWER's free PowCom™ software which offers local and remote management through an advanced Windows GUI.

www.unipowerco.com

North America & CALA: +1 954-346-2442 · EMEA: +1 561-990-3830 · sales@unipowerco.com

SYSTEM SPECIFICATION & CAPABILITY GUIDE

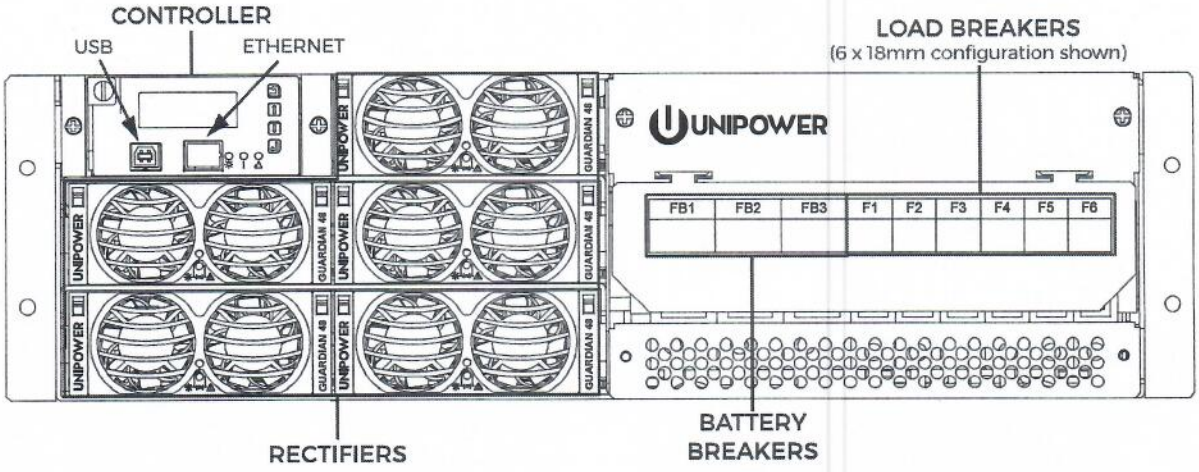
SYSTEM DESIGNATION	GUARDIAN ACCESS 3U - MS0027G	
OUTPUT		
System Voltage	-48VDC nominal | 53.5VDC float	
Maximum Capacity @ 120VAC nominal	Load	175A
	Battery	175A discharge | 75A charge (s/w controlled)
Maximum Capacity @ 230/400VAC nominal	Load	200A
	Battery	200A discharge | 100A charge (s/w controlled)
No. Rectifier Slots	3 or 5 (see configuration guide on page 6)	
DC DISTRIBUTION		
Loads Circuits	1 to 9 (4A to 150A - see configuration guide on page 6)	
Battery Circuits	1 to 3 x (80A, 100A or 125A)	
INPUT		
Voltage (nominal)	1-phase 100-120/200-240VAC (L + N + PE) 2-phase 200-240VAC (L1 + L2 + PE) 3-phase 230/400VAC (L1 L2 L3 + N + PE)	
Frequency	47-63Hz	
Maximum Input Current	82A @ 100-120VAC | 65A @ 200-240VAC | 26A per phase @ 400/230VAC	
Rectifier Power Factor	>0.98 (typical)	
Surge Protection	Optional (see configuration guide on page 6)	
MONITORING & CONTROL (ACX Advanced Controller)		
Alarm Relays	4 standard, option for 10	
Local Interface	4 x 20 LCD, 4-key menu, USB / RS232, microSD card slot (4GB max.) for data logging	
Remote Interface	Ethernet / Modem using PowCom™ software package Ethernet port allows monitoring and control over a TCP/IP network. Web browser support + SNMPv3	
LED Indications	Green - System ON; Yellow - Message(s); Red LED - Alarm(s)	
External Digital I/O	2 x Inputs, 2 x Outputs (Open Collector)	
BATTERY MANAGEMENT		
Symmetry Inputs	6 or 12 (can be redefined as analog inputs up to 100VDC)	
Low Voltage Battery Disconnect (LVBD)	1 x 200A Programmable	
Partial Load Disconnect (PLD)	1 x 125A Programmable (Optional)	
Temperature Compensated Charging	Programmable	
COMPLIANCE		
EMC	EN 300 386 ; EN61000-6-3 (Emission) ; EN61000-6-2 (Immunity)	
Safety	IEC60950-1:2005 2 Ed. +A1:2009	
ENVIRONMENTAL		
Operating Temperature	-40°C to +55°C	
Storage Temperature	-40°C to +85°C	

RECTIFIER MODULES vs. SYSTEM CAPACITIES

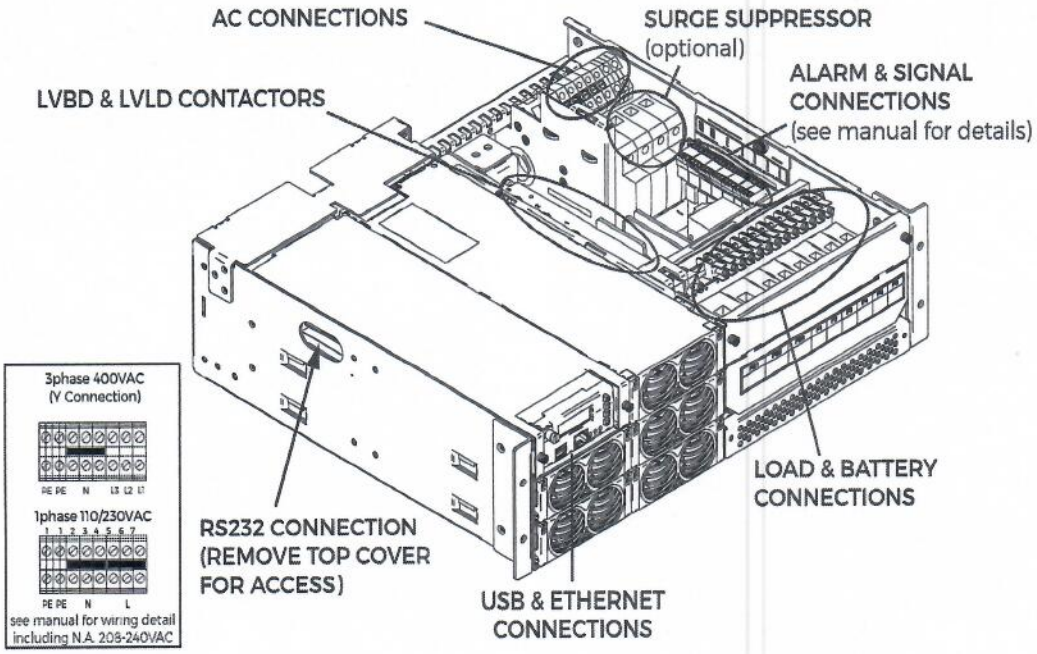
RECTIFIER MODULES						SYSTEM CAPACITY @ FLOAT		
MODEL NUMBER	EFFICIENCY[1]	INPUT VOLTAGE[2]	INPUT CURRENT[3]	OUTPUT POWER	OUTPUT CURRENT 48V / 53.5V	MAX. CHARGE CURRENT	MAX. LOAD CURRENT[5]	
							TOTAL	4+1
FMPe20.48G	>96.0%	85-180VAC	9.6A	1100W[4]	22.9A / 20.6A[4]	75A[4]	103A	82A[4]
		180-275VAC	11.6A	2000W	41.7A / 37.4A	100A	187A	150A
FMP25.48G	>92.5%	85-180VAC	14.4A	1400W[4]	29.2A / 26.2A[4]	75A[4]	131A	105A[4]
		180-275VAC	16.8A	2500W	52.1A / 46.7A	100A	200A	187A
FMPe30.48G	>95.0%	85-180VAC	15.7A	1700W[4]	35.4A / 31.8A[4]	75A[4]	175A	140A[4]
		180-275VAC	17.0A	2900W	60.0A / 54.2A	100A	200A	200A

Notes:
1. When operating at 230VAC.
2. All models will operate over the full range, automatically limiting output current/power according to the actual input voltage range applied.
3. Input currents shown are expected maximums at 85VAC/180VAC as appropriate
4. Figures quoted are at 110VAC input. Derating is linear from 180VAC to 85VAC. See separate rectifier datasheets for details.
5. May required reduction in maximum charge current when batteries not fully charged.

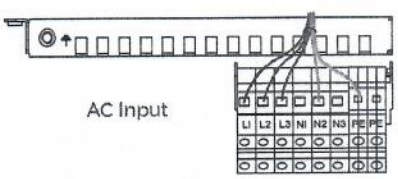
FRONT PANEL DESCRIPTION

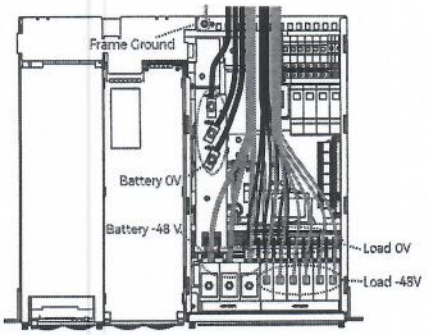


PERSPECTIVE FRONT VIEW

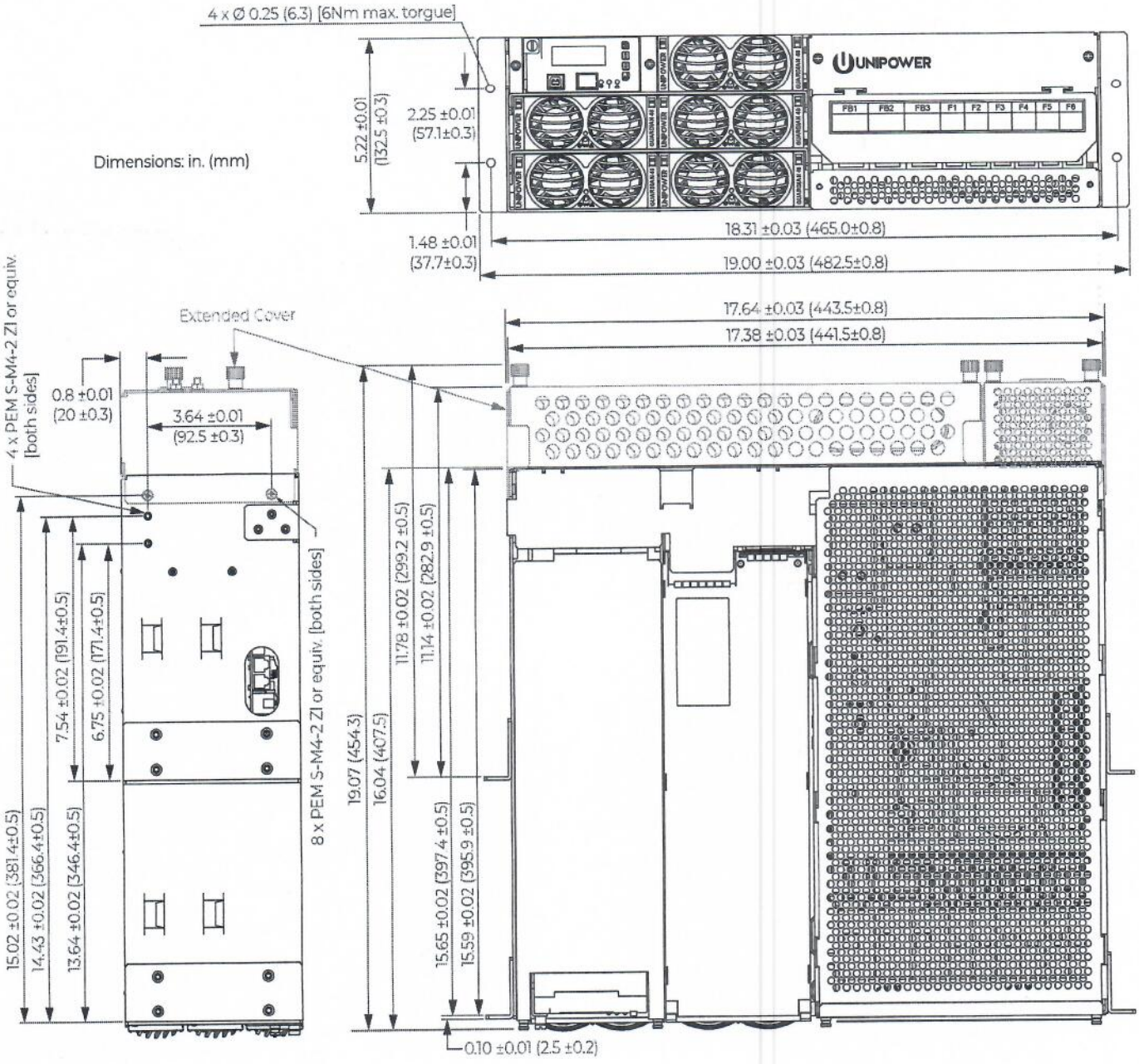


CABLE ROUTING
(Standard AC Input)



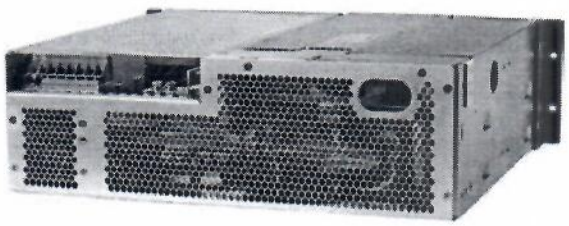


DETAILED DIMENSIONS

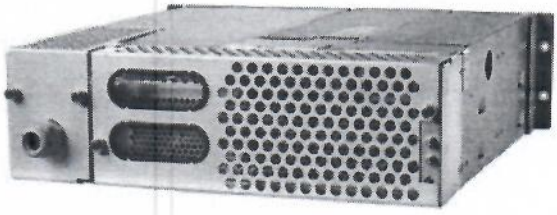


REAR VIEWS

Standard Cover - used on Standard Input Units



Extended Cover - used on Individual In



WEIGHTS & DIMENSIONS

UNIT TYPE	UNIT				PACKAGED				
	Width	Height	Depth	Weight	Width	Height	Depth	Weight	# in box
System Unit (Standard)	19.00 (482.5)	5.22 (132.5)	16.04 (407.5)	39.6 lbs (18 kg)	22.6 (575)	10.2 (260)	19.3 (490)	46.2 lbs (21 kg)	1
System Unit (Extended Top)			19.07 (454.3)	44 lbs (20 kg)	22.6 (575)	10.2 (260)	22.4 (570)	50.6 lbs (23 kg)	1
Rectifier Module	4.2 (107)	1.6 (41)	14.0 (355)	4.6 lbs (2.1 kg)	15.5 (394)	2.3 (58)	8.2 (208)	4.8 lbs (2.2 kg)	1

Dimensions in inches (mm)

PRE-CONFIGURED STOCK MODELS

(normally held in stock for immediate delivery)

ORDER CODE	DESCRIPTION
MS0027G*900041	3 Rectifier Position Chassis - Standard Input ACX Advanced Controller 4 Alarm Relays 100A Battery Breaker (x2) Load Breakers (18mm): 63A (x2) / 32A (x2) / 20A (x2) / 10A (x2) 3m Temp. Sensor Cable (x1) 3m Symmetry Cable (x2) Standard Cover Kit [Rectifiers & Blanking Modules must be ordered separately.]
MS0027G*900042	5 Rectifier Position Chassis - Standard Input ACX Advanced Controller 4 Alarm Relays 100A Battery Breaker (x2) Load Breakers (18mm): 63A (x2) / 32A (x2) / 20A (x2) / 10A (x2) 3m Temp. Sensor Cable (x1) 3m Symmetry Cable (x2) Standard Cover Kit [Rectifiers & Blanking Modules must be ordered separately.]
FMPe20.48G	Rectifier module - 42 Amp [IMPORTANT - install only the same type and rating rectifiers in each systems.]
FMP25.48G	Rectifier module - 52 Amp [IMPORTANT - install only the same type and rating rectifiers in each systems.]
FMPe30.48G	Rectifier module - 60 Amp [IMPORTANT - install only the same type and rating rectifiers in each systems.]
XGB-01-G	Rectifier dummy module [Must be ordered to fill unused rectifier positions.)

For configurations when the pre-configured stock models do not suit the requirement please complete the "non-stock configuration guide" on the next page and email to customer.services@unipowerco.com for verification and quotation.

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Dimensions in inches (mm)

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(normally held in stock for immediate delivery)

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UNIPOWER
POWERING TECHNOLOGY

FMPe30.48J

48VDC RECTIFIER
62.5 Amps | 3000 Watts

DESCRIPTION

The FMPe30.48J rectifier incorporates resonant technology to reduce component stresses, providing increased system reliability and a peak efficiency of 96.2%. The rectifier features a wide input operating voltage range to maximize power availability within demanding utility power environments.

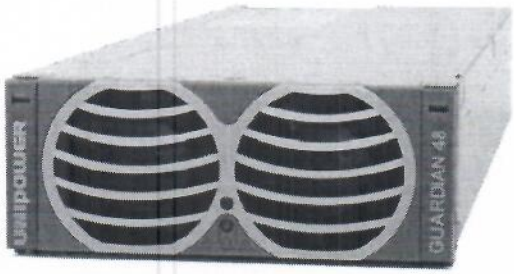
These compact rectifiers support up to 15kW in a 1RU 23" shelf. A wide variety of distribution options are available to provide the maximum system flexibility for a wide range of communications applications that demand efficiency, reliability, and flexibility including wireless base stations, remote switches, and broadband access.

FMPe30.48J is one of several rectifier types that can be installed in the Guardian Series DC power systems, see additional information on the UNIPOWER web site.

FEATURES

- High efficiency and energy saving
- 96.2% peak efficiency
- Leading power density up to 32W/in³
- Rugged input voltage range
- Thermal protection
- Hot-swappable
- International standards compliance

THREE YEAR WARRANTY

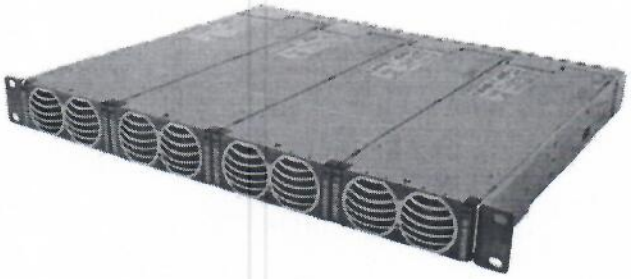


061384 LVD2006/95/EC ROHS2011/65/EU

RECTIFIER MODULE ORDERING GUIDE

MAX. POWER	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT VOLTAGE[2]	INPUT CURRENT[4]	MODEL NO.
3000W	48.0VDC 53.5VDC[1]	62.5A 56.1A	85-275VAC	18.5A/13.1A	FMPe30.48J

Notes:
1. Default factory setting.
2. Units will operate over the full range from 85VAC to 275VAC, automatically limiting output current according to the actual input voltage range applied.
3. Input currents shown are nominal values at 110VAC/240VAC as appropriate.



SHELF ORDERING GUIDE

APPLICATION	RECTIFIER POSITIONS	RACK WIDTH	MODEL NUMBER
48V only	4	19"	XG1948G
	5	23"	XG2348G
Dual 48/24V	4	19"	XG1900G
	5	23"	XG2300G

SHELF ACCESSORIES

PART NUMBER	DESCRIPTION
XGB-01-G	Blank cover plate for empty slot.
1-157379-G	Bus Bar hardware kit for single shelf applications; consisting of set of screws and washers for attaching DC power cables. Must be ordered with each shelf used in standalone applications.
1-155302-G	Bus Bar hardware kit for parallel shelf applications; consisting of DC bus link bars and set of screws and washers for attaching DC power cables. Must be ordered with each shelf used in parallel applications.

SAFETY CERTIFICATION

CAN/CSA C22.2 No 62368-1:2014
UL 62368-1:2014
EN 62368-1:2014/A11:2017

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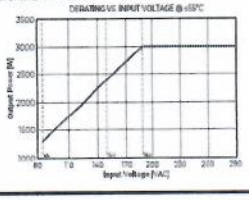
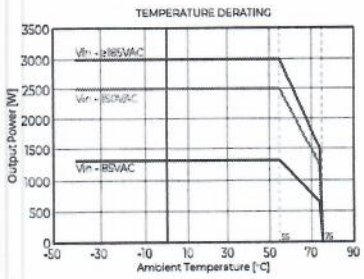
North America & CALA: +1 954-346-2442 · EMEA: +1 561-990-3830 · sales@unipowerco.com

Specifications

INPUT		
Voltage		Operating Range: 85-275VAC
		Permitted variation: 85-300VAC (L-PE and N-PE <250VAC)
Current		<13.1A @ 240VAC <18.5A @ 110VAC
Frequency		47-63Hz
Power Factor		>0.99 at >25% load
Fuse		Two 25A fast blow (L & N)
OUTPUT		
Voltage Range		46-57.6VDC
Power		3000W at ≥185VAC; 1720W at 110VAC; 1300W at 85VAC 
Current	@ 48V	62.5A at ≥185VAC; 35.8A at 110VAC; 27.1A at 85VAC
	@ 53.5V	56.1A at ≥185VAC; 32.1A at 110VAC; 24.3A at 85VAC
Derating		18.2W/Vin from 185-85Vin
Efficiency		96.2% peak
Tolerance		Vout ±1.0%
Transient Response		±5% at load variation 10-90% or 90-10%, recovery time 20ms
Load Sharing		<5% of nominal current
Ripple		<250mV p-p (BW 20MHz)
Psophometric		<2mV, according to CCITT norms
STANDARDS		
Inrush Current		ETSI ETS 300 132-1
Harmonics		EN61000-3-2
EMC		ETSI EN300 386 V.1.3.2 EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4 EN55024 performance criterion A EN55022 Class B Telcordia NEBS GR1089
Safety		CAN/CSA C22.2 No 62368-1:2014 UL 62368-1:2014 EN 62368-1:2014/A11:2017
Environmental		Storage: ETSI EN300 019-2-1 Transport: ETSI EN300 019-2-2 Operation: ETSI EN300 019-2-3 Damp Heat: IEC60068-2-78

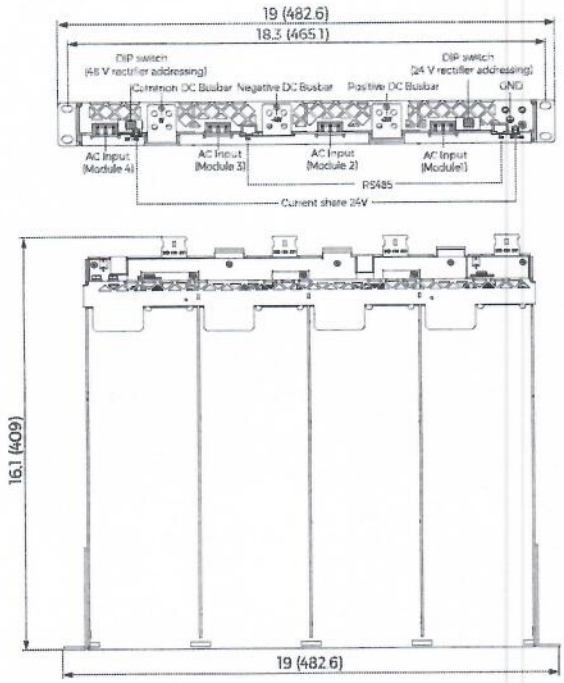
MECHANICAL	
Dimensions, inches (mm)	4.2 W x 14.0 D x 1.6 H (107 W x 355 D x 41 H)
Weight	4.6lbs. (2.1kg)
Cooling	Fan-cooled, speed controlled
Insulation	4.25kVDC primary-secondary 2.12kVDC primary-ground 0.2kVDC secondary-ground
Enclosure	IP20
Mounting	19in/23in x 1RU sub-rack up to 4/5 modules
GENERAL	
Protection	Short circuit protection, automatic current/power limiting, input/output overvoltage protection, thermal protection.
Alarms	Fan failure Short circuit/arcing protection High temperature/output voltage Low output voltage Input voltage out of range Low fan speed (warning) Internal communication failure
LED Indicators	Green: AC normal operation Yellow steady: Low fan speed, High temperature Yellow flashing: Comms. failure Red: Module alarm / shutdown
Audible Noise	<45dBA @ ≤25°C (50% load) <60dBA (100% load)
Operating Temperature	-40°C to +75°C up to 2000m Reduced spec -40°C to -20°C  For 3000m altitude derated by 5°C
Storage Temperature	-60°C to +85°C
MTBF @ 25°C (without fan)	>832,000 hours Telcordia (Belcore) SR-332 Iss.1

1RU Power shelf Specifications

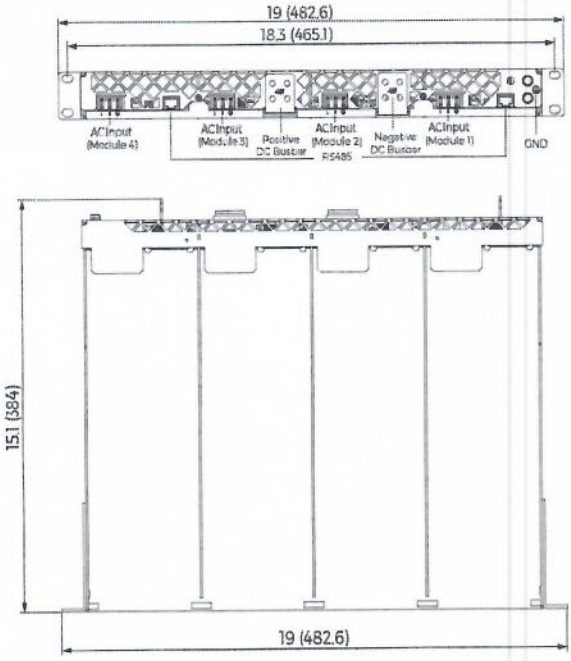
INTERFACE / SIGNALING	
Addressing	For controller supervision each module position is addressed via DIP switches. Each switch can set 4-bit binary address, which means up to 16 Power Shelves (with up to 64 modules) can be supervised. Addressing is performed by setting the four bits to ON or OFF (ON=1, OFF=0).
Communication	Internal Communication bus RS485
DESIGN STANDARDS	
EMC	IEC/EN61000-4-6; GR-1089; IEC/EN61000-4-3; EN55022/CISPR 22 Class B; FCC E222CFR
Safety	UL60950-1 CSA60950-1 EN60950-1 (UL approval only for input voltage levels 120 VAC / 250 VAC) IEC60950-1 CB report CE-mark for LVD/EMI
GENERAL	
Environmental Immunity	IEC/EN60068-2-64 - 1993-05-28; IEC/EN60068-2-27 - 1987-06-15; IEC/EN60068-2-27 - 1987-06-15; IEC/EN60068-2-29 - 1987-03-30
Storage	ETSI EN 300 019-2-1
Transport	ETSI EN 300 019-2-2
Operation	ETSI EN 300 019-2-3
Damp Heat	IEC60068-2-78
Operating Temperature and Altitude	-40°C to +55°C up to 2000m; Reduced specification: -40°C to -20°C
Extended Temperature and Altitude	Linear derating from 100% to 70% maximum power at 55 to 65°C Reduced ambient temperatures by 5°C at 3000m
Cooling	Designed for fan cooled, speed controlled modules (front to rear airflow)
Module Configuration	Hot-swappable modules (N+1)
Insulation	Basic: from input to chassis Reinforced: from input to output
Enclosure	IP21
Dimensions, inches (mm)	XG1948G: 19.0 (483) W x 1.75 (44.5) H x 15.1 (384) D XG2348G: 23.0 (584) W x 1.75 (44.5) H x 15.1 (384) D XG1900G: 19.0 (483) W x 1.75 (44.5) H x 16.1 (409) D XG2300G: 23.0 (584) W x 1.75 (44.5) H x 16.1 (409) D
Weight (no modules)	XG1948G: 11.0 lb (5.0 kg) XG2348G: 13.2 lb (6.0 kg) XG1900G: 13.2 lb (6.0 kg) XG2300G: 14.3 lb (6.5 kg)
Mounting	19" or 23"
Application	XG1948G & XG2348G - 48V only XG1900G & XG2300G - dual 48V & 24V or 24V only

1RU Power shelf Mechanical - 19"

XG1900G - Top and rear view with position and description of connectors

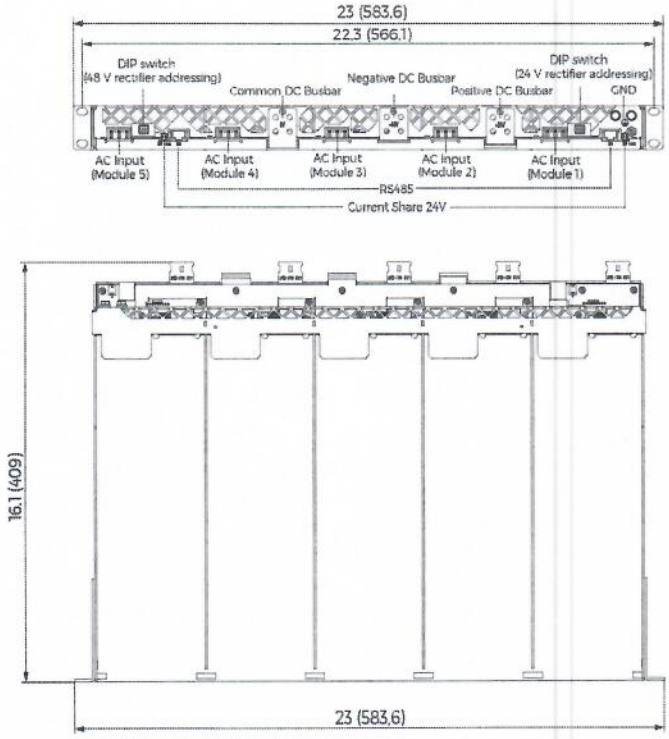


XG1948G - Top and rear view with position and description of connectors

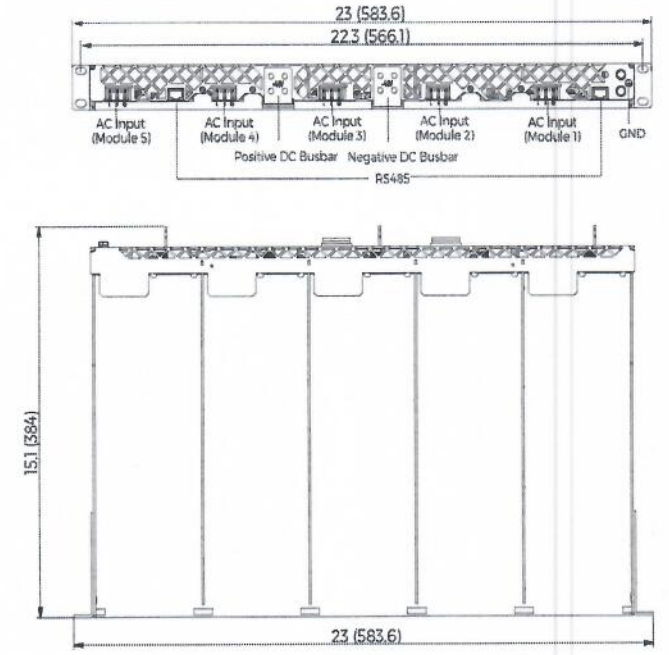


1RU Power shelf Mechanical - 23"

XG2300G - Top and rear view with position and description of connectors



XG2348G - Top and rear view with position and description of connectors



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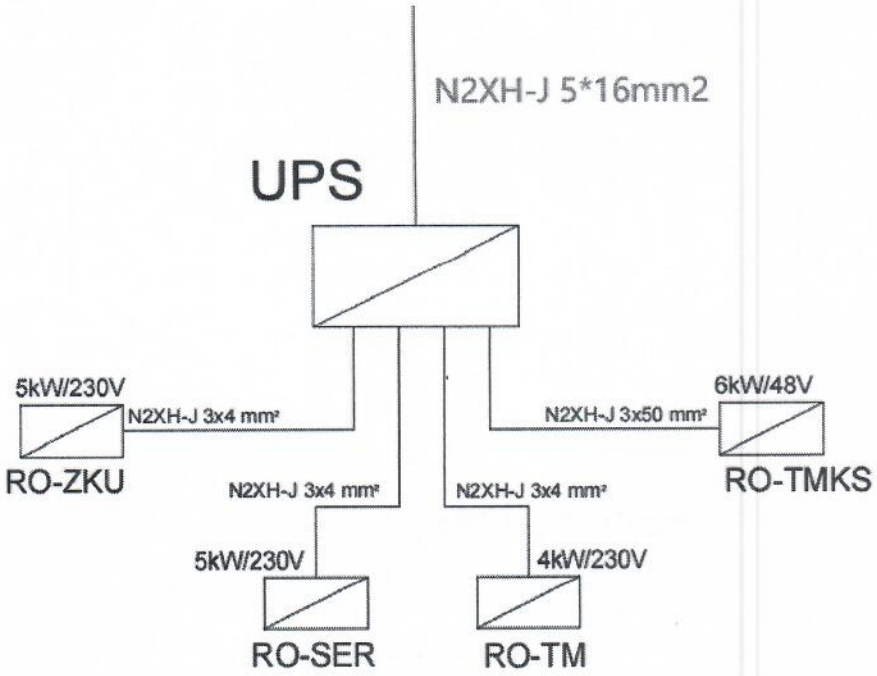
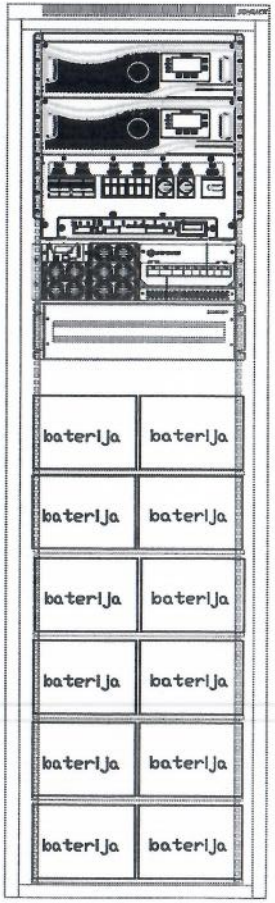
04.00	**УПС**				
04.01	**UPS Sistem** -Набавка, испорука и повезивање на унапред припремљеној приводно/одводној инсталацији и пуштање у рад модуларног субрек UPS система снаге 40kW у редудантној конфигурацији 20kW+20kW Centiel CumulusPower CP 2x20kW CAB-UR050 и модуларног исправљачког система максималне расположиве снаге 250A сличног типу Unipower Guardian Access 3U | MS27, субрек са исправљачким модулима у конфигурацији 2x3kW + 3kW као редуданца у конфигурацији N+1; Смештени у 19" самостојећи орман димензија 45U/800/1000 (ВхШхД), носивости минимум 1500kg и са heavy duty полицама носивости 150kg свака; Због проблема са смештајним простором система у исти орман морају бити смештене и AGM батерије без одржавања капацитета 40 комада x56,4 Ah @C10, батеријски сет дизајнираног животног века 10-12 година; AC дистрибуција са предње стране ормана, прикључне редне стезаљке као излаз/улаз су измештени назад . Предвиђа се и метални носач комплетног ормана, предвиђен за велике тежине за монтажу у подигнут под.				

UPS модули су предвиђени за on-line режим конверзије, ефикасности не испод 97% у on line режиму. Сваки UPS модул мора да има сопствени LCD дисплеј, пуњач батерија минимум 20A по модулу, бајпас осигурачи и излазни прекидач сваког UPS модула су обавезни са приступом са предње стране и лаком изменом ; UPS субрек мора имати одговарајући фабрички уграђен сервисни бајпас са предње стране ради лаке и брзе манипулације ; температурна компензација пуњача батерија је обавезна; UPS модули су са трофазним улазом и трофазним излазом који се води на AC дистрибуцију на истом орману; заштите у AC дистрибуцији су 3x50, 3x40, 3x32A.Дозвољено трајно преоптерећење UPS модула је 124% ! UPS мора да има могућност флексибилног броја батерија у батеријском стрингу, ради лакшег довођења батеријског сета у функционално стање током експлоатације. SNMP и MODBUS комуникација UPS обавезно укључене у систем . Исправљачки систем мора имати могућност замене модула и процесора у раду, "на живо". Сигнализација испада DC осигурача је обавезна. У DC дистрибуцији , излази су 125A x2, 40A x2. Улазни напон је 3ph; излазни напон је -48Vdc, видно уземљен (+) поларитета једносмерног напона. SNMP и релејно безнапонска сигнализација статуса исправљачког система. У систем је могуће додати 5 модула снаге 3kW. Коначна тежина система је 1.226kg; димензије основе 800x1000,висина 45HU; рек орман мора бити перфориран са предње и задње стране а смер струјања ваздуха је од напред ка назад. Сличан типу 20kW+20kW Centiel CumulusPower CP 2x20kW CAB-UR050 и Unipower Guardian Access 3U | MS27				


N2XH-J 5*16mm2
UPS
5kW/230V
N2XH-J 3x4 mm²
RO-ZKU
N2XH-J 3x4 mm²
5kW/230V
RO-SER
N2XH-J 3x4 mm²
4kW/230V
RO-TM
N2XH-J 3x50 mm²
6kW/48V
RO-TMKS

rek orman sa integrisanim modularnim UPS sistemom 2x20kW, autonomije 1h@20kW modularnim ispravljačkim sistemom 3x3kW



modularni UPS sistem 20kW+20kW, konfiguracija N+1

integrisani servisni bajpas UPS sa slotom za SNMP i MODBUS

modularni ispravljački sistem sa DC distribucijom 125A x2, 40Ax2, SNMP i alarmnim izlazima

AC distribucija 3x50A ; 3x40A ; 3x32A

Revizioni blok				Број	Датум	Опис
Број	Датум	Опис		04		
01				05		
02				06		
03				07		

ЗАВОД ЗА ЕЛЕКТРОТЕХНИКУ

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